

ABSTRACT

[0097] A charge-coupled device imager including an array of super pixels disposed in a semiconductor substrate having a surface that is accessible to incident illumination. For each super pixel there is provided a plurality of subpixels which each correspond to one in the sequence of image frames. Each subpixel includes a doped photogenerated charge collection channel region opposite the illumination-accessible substrate surface, a charge collection channel region control electrode, doped charge drain regions adjacent to the channel region, a charge drain region control electrode, and a doped charge collection control region. To each subpixel are provided channel region and drain region control voltage connections, for independent collection and storage of photogenerated charge from the substrate at the charge collection channel region of a selected subpixel during one in the sequence of image frames and for drainage of photogenerated charge from the substrate to a drain region.